DOCUMENT RESUME

ED 138 133 HE 008 757

AUTHOR	Munday, Leo A.
TITLE	Impact of Educational Development, Family Income, College Costs, and Financial Aid in Student Choice and Enrollment in College. Report No. 77.
INSTITUTION	American Coll. Testing Program, Iowa City, Iowa. Research and Development Div.
PUB DATE	Nov 76
NOTE	26p.
AVAILABLE FROM	ACT Publications, the American College Testing Program, P.O. Box 168, Iowa City, Iowa 52240 ($1.00)
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	*College Choice; College Environment; Costs; *Educational Development; Educational Economics; *Educational Finance; Educational Research; Enrollment; Enrollment Influences; Family Characteristics; *Family Income; *Higher Education; Student Characteristics; Student College Relationship; *Student Financial Aid
IDENTIFIERS	*American College Testing Program

ABSTRACT

Relationships among student and college characteristics are studied in conjunction with colleges students chose and attended. Two data sets, one of students who were college bound in 1971-72, and the other of financial aid applicants who were college freshmen in 1972-73, are used. The relation between family income and college cost is examined. The relation of students' family income and educational development to characteristics of the college attended and chosen is considered. A third issue studied is the interrelationships of various college characteristics, including average student family income, cost, and mean ACT Composite scores. These subjects are addressed using both of the data sets; contrasts in findings are noted where appropriate. Discussion includes review of study limitations and exploration of study implications both for common assumptions about college going and research and policy questions. (Author)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ACT RESEARCH REPORT

No. 77

77

November 1976

IMPACT OF EDUCATIONAL DEVELOPMENT, FAMILY INCOME, COLLEGE COSTS, AND FINANCIAL AID IN STUDENT CHOICE AND ENROLLMENT IN COLLEGE

Leo A. Munday

PUBLISHED BY THE RESEARCH AND DEVELOPMENT DIVISION

THE AMERICAN COLLEGE TESTING PROGRAM

P. O. BOX 168, IOWA CITY, IOWA 52240

IMPACT OF EDUCATIONAL DEVELOPMENT, FAMILY INCOME, COLLEGE COSTS, AND FINANCIAL AID IN STUDENT CHOICE AND ENROLLMENT IN COLLEGE

ABSTRACT

Relationships among student and college characteristics were studied in conjunction with colleges students chose and attended. Two data sets, one of students who were college-bound in 1971-72, and the other of financial aid applicants who were college freshmen in 1972-73, were used. The relation between family income and college cost was examined. The relation of students' family income and educational development to characteristics of the college attended and chosen was considered. A third issue studied was the interrelationships of various college characteristics, including average student family income, cost, and mean ACT Composite scores. These subjects were addressed using both of the data sets and contrasts in findings are noted where appropriate. Discussion includes review of study limitations and exploration of study implications both for common assumptions about college-going and for research and policy questions.

Prepared by the Research and Development Division
The American College Testing Program

ACT, a nonprofit organization, is an Equal Opportunity Employer.

© 1976 by The American College Testing Program

All rights reserved. Printed in the United States of America

For additional copies write:
ACT Publications
The American College Testing Program
P.O. Box 168, Iowa City, Iowa 52240

(Check or money order must accompany request.) Price: $1.00

Order No. 4-7-77

IMPACT OF EDUCATIONAL DEVELOPMENT, FAMILY INCOME, COLLEGE COSTS, AND FINANCIAL AID IN STUDENT CHOICE AND ENROLLMENT IN COLLEGE

Leo A. Munday

For the nation's college-bound students, it has become a buyer's market. Most colleges are concerned about enrollments; no longer can the typical college select its students from a vast pool of applicants. Now, instead, the student may choose among a number of alternative colleges.

Despite this trend, very little is known about how and how well students choose or match themselves to colleges and universities. Although much is known about individual differences among students and about individual differences among colleges, the ways the two "mesh" are obscure.

Given certain characteristics of college-going students (such as their educational development and their family income) and given certain characteristics of colleges (such as costs, average educational development of the student body, and average family income of the student body), how are college-bound students distributed in various colleges and universities? What college characteristics act as barriers and which as magnets to student enrollment? What is the impact of financial aid on these relationships?

Educators make a number of assumptions about the relationships among student income, student educational development, and college costs. Undoubtedly, these assumptions vary in their validity, but very little information is available to help answer the many questions of educational and social policy related to such assumptions. The purpose of this study is to examine objective information about the relationships among these variables both for a national sample of college-bound students and for a sample of college-bound students who were also financial aid applicants.

Method

Data Set 1: College-Bound Students

Two samples of college students were used. The first sample consisted of college students who for the most part were first-time freshmen in fall 1972. Most of these students had written the ACT Assessment in 1971-72 as high school seniors. The sample was drawn from the rosters of the ACT Class Profile Service prepared for 1,200 colleges and universities on their freshmen who enrolled in fall 1972. By sampling after college entry, we were able to obtain information about college attendance as well as about student characteristics from the basic ACT Assessment record. For each of the 1,200 institutions, student records were ordered either by Social Security number or alphabetically. Every tenth record was pulled for the study. The resulting student sample approximated a 10% sample of

---

This report was prepared when the author was ACT Vice President of Research and Development. Dr. Munday is now Vice President for the Test Department of the Houghton Mifflin Company.

freshmen attending ACT-participating postsecondary institutions in 1972. While not completely representative of American postsecondary education, the sample was probably reasonably representative in the Midwest, South, and West. The information available for each student included students' estimated family income, ACT Composite scores, and rank ordering of first, second, and third for three college choices (ranked before enrollment). These college choices reflect not only ideal preferences but also reality factors, because, typically, students who identify a college as first choice have six chances in ten of enrolling; students who identify a college as second or third choice about two chances in ten. The information about colleges came primarily from group statistics in the Class Profile Service. For example, for enrolled students at these colleges, the distribution of estimated family income[1] and means and distributions for ACT Composite scores were available. From ACT's Student Assistance Program, we obtained college costs that each institution had submitted to ACT to permit determination of student need at individual institutions. The cost of attendance included tuition, room, board, and supplies for a 9-month budget. We considered each college budget in terms of a typical college student, and made the assumption the student would be full time, resident on campus, family dependent, single, and an in-state resident. College budgets were available for 1,497 colleges (most located in the Midwest, South, and West), and were ranked by quartiles for analysis. The figures for first, second, and third quartiles were $1,525, $2,048, and $2,798, respectively. If a student had no college choices or if the college of attendance had supplied no budget information, the student's record was deleted. Records were included for as many analyses as possible.

Data Set 2: Financial Aid Applicants

The second sample, which consisted of 2,384 college students who were financial aid applicants, had been drawn for the College Investment Decision Study conducted by McMahon and supported by the U.S. Office of Education, National Institute for Education, and the ACT Program. It included students for whom both the ACT Assessment and the ACT Student Assistance Program records were available and is described by McMahon and Wagner (1973). Like the first sample, these students were college freshmen in 1972-73; the same data elements on students and colleges were available. The sample is not representative of college students generally; it was drawn to overrepresent students from low-income and minority backgrounds. All students in the sample were aid applicants in the sense that they had filed a Family Financial Statement with ACT and had asked that their financial need be communicated by ACT to designated colleges as a part of their application for financial assistance.

Analyses

The first question to be examined concerned the relationship between family income on the one hand, and cost of college attended and other colleges of interest, on the other. To examine this relationship, we first charted the percentage of students from each of eight family income levels who were attending or interested in high-cost colleges. The percentages were charted separately for each of the two samples. A high-cost college was defined as a college in the upper half in cost among the 1,497 colleges for which these data were available. The relationship between family income and college cost was further examined through the correlations of the two variables in the 10% sample and the financial aid applicant sample.

The second major issue was the relation of the student's family income and educational development to characteristics of the colleges attended and chosen. For this examination, the percentages of students for each of eight family income levels who were attending colleges with high mean family incomes were charted. The percentages of students from different levels of ACT Composite scores attending colleges with high mean ACT Composite scores were also charted. Relevant correlations were also examined.

The final major issue was the relationship of the college characteristics to average student family income, cost, and mean ACT Composite scores. Intercorrelations of these variables were computed.

---

[1] As a preliminary validity check on estimated family income, this item was correlated with father's occupation, mother's occupation, father's education, and mother's education, for a sample of approximately 1,000 students (the number varied according to which data on each set of two variables was available) who participated in the ACT Career Planning Program 12-13 in 1973-74. The correlations were .28, .24, .31, and .26, respectively. The sample, which was composed of applicants to community college career programs, contained a disproportionately large number of students from lower socioeconomic backgrounds.

Results

College Cost and Family Income

Table 1 presents information about the relationship for college students generally between family income on the one hand, and cost of college attended and other colleges of interest, on the other. The table gives the percentages of students in each family income interval who attended and expressed interest in a high-cost college.

From this table several observations are possible. At all income levels, students are interested in colleges whose costs are higher than those of the college they actually attend. The discrepancy between cost of college attended and cost of first choice college is greatest at the low end of the family income distribution and least at the high end. There is a slight general tendency for cost of college attended to increase with family income, though the tendency is more marked at the income extremes. Finally, the first, second, and third choices of college are more similar in cost at the high income levels than at the other income levels.

In general, these conclusions confirm common assumptions about family income and college costs. For example, people are interested in colleges which are more expensive than they can afford. And, we would expect college cost to interfere with attendance at college of choice to a greater extent at low income levels than at other levels.

Table 2 provides data on these relationships for the sample of financial aid applicants. Unlike college students generally, more aid applicants at the lower income levels are attending high cost colleges than indicated such colleges as first, second, or third choices. Low-income applicants have the greatest chance for large amounts of aid. In the middle- to high-income levels, the relationship between cost of college attended and first choice college is similar to that found for college students generally; students are interested in a college whose costs are higher than those of the college they actually attend. At the upper income interval, however, there is a considerable discrepancy; far more aid applicants indicated a high cost college as first choice than actually attended. There is a general tendency for cost of college attended to increase with family income, as was the case with college students generally, though differences noted at the extremes are not in a direction consistent with this relationship. Overall, the relation between family income and cost of college of first choice is closer for the financial aid applicant group than for the college student group generally, the higher the income, the greater the percentage preferring a high-cost college. Finally, the relation between and among choices, enrollment at high-cost colleges, and family income, are not so orderly for the financial aid applicants as for students generally. Not only are different things happening at different income levels, but relationships among choices and enrollment are not consistent.

Some of these findings agree with common assumptions about financial aid applicants and the impact of aid on the relation between family income and college costs, and some do not. The sizeable percentage of low-income students who attend high-cost colleges, in contrast to the percentage who indicated these colleges as their first choice, would not be anticipated by many. It probably is a function of financial aid.

Table 3 presents data for college-bound students generally. Intercorrelations among the student characteristics (family income and ACT Composite score) and characteristics of colleges chosen and attended are reported. College characteristics include college cost, average ACT Composite score of freshmen, and indicator of student family income defined as percent of freshmen with family income over $9,000 per year[2]. The correlation between students' family income and cost of college attended is a surprisingly low .07, and runs counter to the common assumptions that lower income students attend low-cost colleges and rich students high-cost colleges, and that in between these extremes, the relationship is linear. Table 1 did confirm this assumption at the extremes of income, but the correlations show the relationship to be very small overall. The correlations between family income and the cost of colleges students indicated as their first, second, and third choice are also low—.05, .09, and .04, respectively. The relationship among the college

[2]Approximately 30% of the students who write the ACT Assessment respond to the family income item by marking that they consider this confidential or do not know. Such students were omitted from analyses that required this item. The college characteristic of student family income defined as percent of freshmen with family income over $9,000 per year is consequently underestimated, because of the large percentage of students who did not respond to the item.

TABLE 1

Percent of Students by Family Income Attending and Interested in a High-Cost College

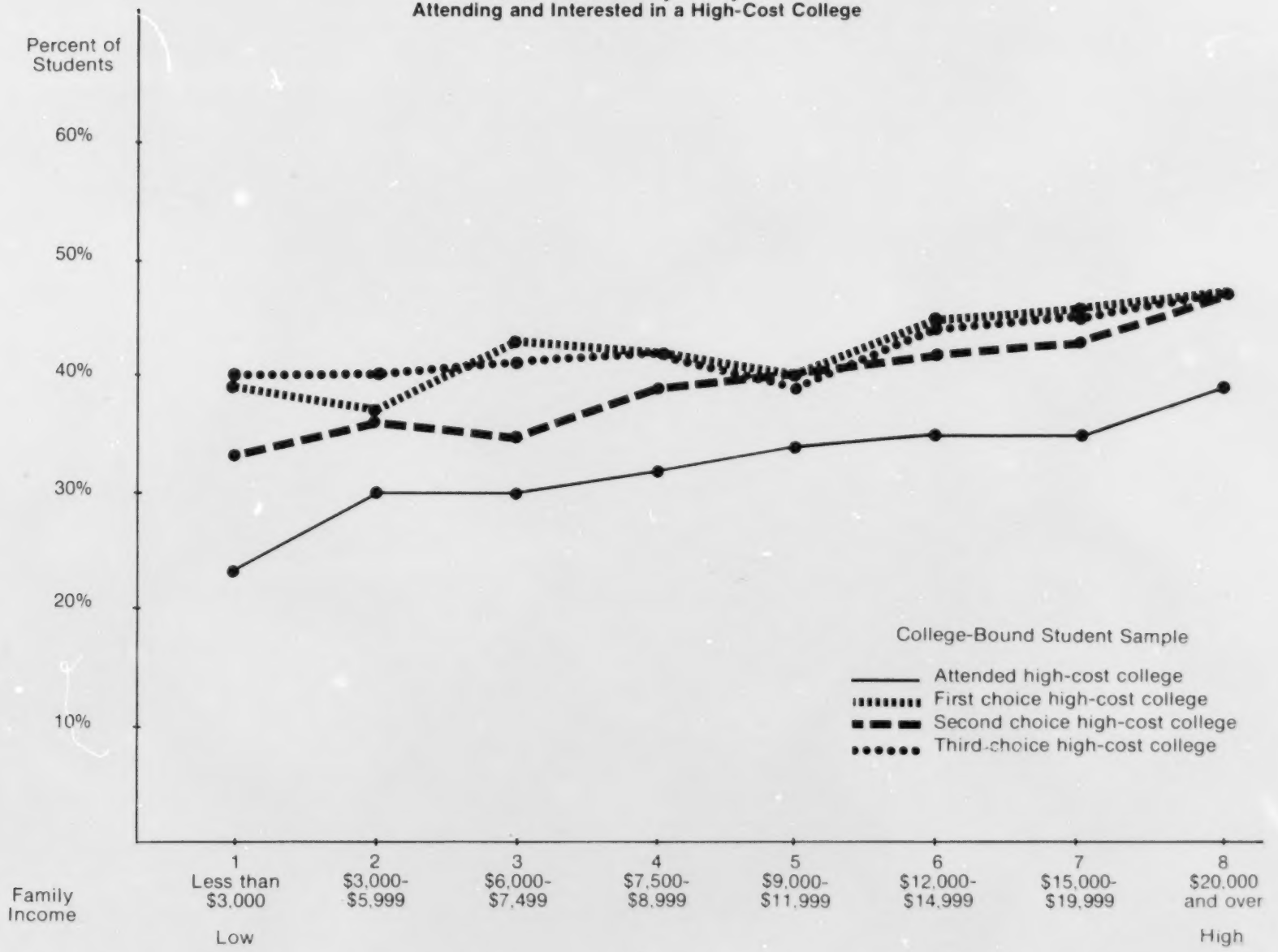

TABLE 2

Percent of Financial Aid Applicants by Family Income Attending and Interested in a High-Cost College

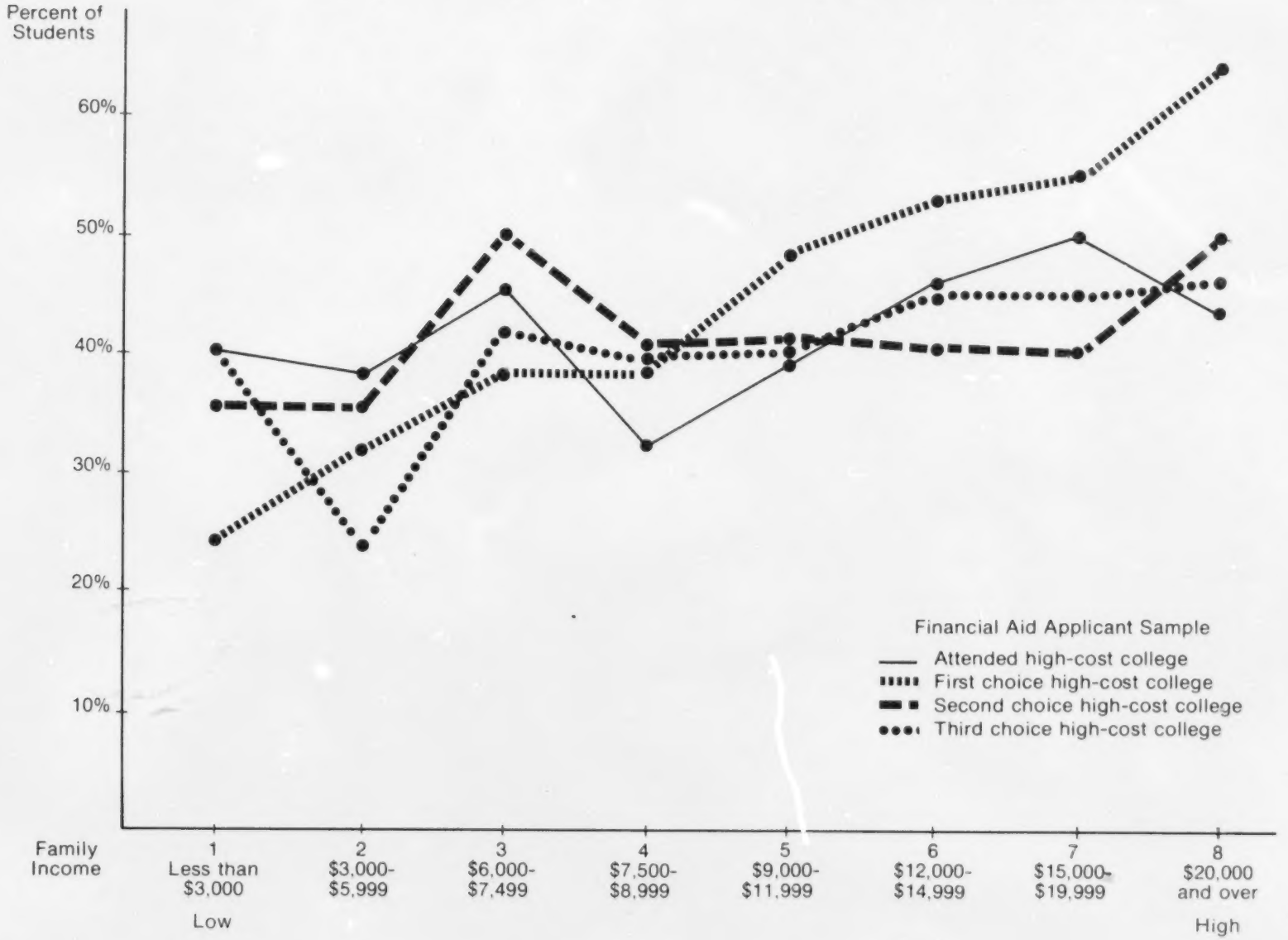

TABLE 3

Intercorrelations among Student Characteristics and Characteristics of Colleges Attended and Chosen as First, Second, and Third Choice by College-Bound Students Generally

		2	3	4	5	6	7	8	9	10	11	12	13	14	$\bar{X}$	SD	N-Students[a]
Students' Family Income	1	07	05	09	04	22	23	15	16	15	30	22	22	19	4.8	2.0	16,133
Budget Q/College Attended	2		21	20	18	17	36	13	13	12	06	01	00	01	2.2	.9	21,807
Budget Q/College 1st Choice	3			20	14	09	14	34	15	12	03	04	01	01	2.4	.9	6,930
Budget Q/College 2nd Choice[b]	4				21	10	13	14	35	13	03	-03	05	02	2.3	.9	15,015
Budget Q/College 3rd Choice	5					08	11	09	13	36	03	00	00	07	2.3	.9	11,793
Students' ACT Composite Score	6						46	29	27	27	18	15	13	14	20.6	5.3	32,024
$\bar{X}$ ACT Composite at College Attended	7							31	33	31	39	13	11	11	20.1	2.8	33,754
$\bar{X}$ ACT Composite at 1st Choice College	8								32	28	12	45	10	08	20.7	2.7	9,298
$\bar{X}$ ACT Composite at 2nd Choice College	9									30	11	06	46	08	20.6	2.6	19,549
$\bar{X}$ ACT Composite at 3rd Choice College	10										10	09	07	49	20.5	2.7	15,390
% of Student Body above $9M at College Attended	11											31	30	28	38.0	10.0	31,745
% of Student Body above $9M at College 1	12												34	26	40.0	10.0	9,297
% of Student Body above $9M at College 2	13													27	40.0	10.0	19,544
% of Student Body above $9M at College 3	14														39.0	10.0	15,386

Note. Correlations in each case are based on the maximum N-counts for each set of two variables. Decimals are omitted in reporting correlation coefficients.

[a]Students were excluded and do not appear in the N-count if they left item blank or reported they did not know or considered this information confidential.

[b]Not all students indicated three college choices; many reported less.

characteristics was similar. Family income (percent of students with family income above $9,000) and cost correlated .06, .04, .05, and .07, respectively for college attended and colleges of first, second, and third choice.

Similarly, low correlations were found for the financial aid applicant sample. These correlations, reported in Table 4, were .03 between student family income and cost of college attended. In addition, the correlations between students' family

TABLE 4

Intercorrelations among Student Characteristics and Characteristics of Colleges Attended and Chosen as First, Second, and Third Choice by College-Bound Financial Aid Applicants

		2	3	4	5	6	7	8	9	10	11	12	13	14	$\bar{X}$	SD	N-Students
Students' Family Income	1	03	17	01	08	35	04	25	21	29	01	24	19	23	3.6	1.9	1,229
Budget Q/College Attended	2		-02	-02	-17	01	26	03	03	12	14	01	05	03	2.3	.9	2,036
Budget Q/College 1st Choice	3			22	12	13	01	28	15	01	01	15	03	-03	2.3	9	2,002
Budget Q/College 2nd Choice	4				22	09	-15	07	30	12	-06	-01	13	-08	2.3	9	493
Budget Q/College 3rd Choice	5					10	-03	13	11	17	01	01	-03	-03	2.4	.9	254
Students' ACT Composite Score	6						04	43	37	29	04	27	24	18	19.8	6.0	2,334
$\bar{X}$ ACT Composite at College Attended	7							03	06	04	62	02	02	07	19.6	2.6	2,057
$\bar{X}$ ACT Composite at 1st Choice College	8								43	34	02	59	23	22	19.5	2.5	1,979
$\bar{X}$ ACT Composite at 2nd Choice College	9									29	04	22	57	07	20.0	2.7	589
$\bar{X}$ ACT Composite at 3rd Choice College	10										-01	14	17	56	19.9	2.6	294
% of Student Body above $9M at College Attended	11											00	-02	04	36.0	10.0	2,054
% of Student Body above $9M at College 1	12												39	31	36.0	10.0	1,978
% of Student Body above $9M at College 2	13													32	37.0	10.0	587
% of Student Body above $9M at College 3	14														37.0	10.0	294

income and cost of college given as first, second, and third choice were .17, -.01, and .08, respectively.

All these results considered together indicate a surprising lack of relationship between family income and cost of college attended or selected by students. These results suggest that one assumed influence on college choice may not be so restrictive as is commonly believed.

Relation of Family Income and Educational Development to College Choice and Attendance

Table 5 shows that students from families with high incomes attended colleges that enroll sizeable numbers of students from above-average incomes. Correlations reported in Table 3 between students' family income and average family income of enrolled students (the percent of enrolled students with incomes of $9,000 or more), were .30, .22, .22, and .19 for college attended, and college of first, second, and third choice, respectively. This represents a low to moderate relationship. Students tend to sort themselves or are sorted among colleges on the basis of family income, a type of social stratification. Considering this relationship along with the observed lack of relation between student family income and college cost, it appears that the operating stratifying variable is not cost of college but social background (or family income) of students who attend.

There is a tendency for students to be stratified not only by family income but also by educational development, as measured by test scores. Table 6 charts the relationship of student educational development to attendance at a college enrolling large numbers of students with high educational development. A clear relationship can be observed. Further, Table 3 shows students' ACT Composite scores were correlated .46, .29, .27, and .27 with mean ACT Composite scores at colleges attended, first choice, second choice, and third choice, respectively. Educational development joins social background as a major stratifying variable in student choice of and attendance at particular colleges.

To portray in another way the relationships among family income, educational development, and cost of college attended, Table 7 was designed to show quartiles in college costs across the top, and student groups defined as combinations of extremes of the distributions in family income and educational development down the left-hand side. As would be expected, more students from high-income and high educational development backgrounds attended a high-cost college than did students from low-income and low educational development backgrounds. Two conclusions, however, are not common knowledge. First, students are quite dispersed on these dimensions; a full 30% of high-income, high educational development students attended a low-cost college, and 4% of low-income, low educational development students attended a high-cost college. Second, educational development was more potent than family income in attendance at a high-cost college, a conclusion that confirms previously reported correlations. This table is also pertinent to the questions of whether enrollment would increase if college costs decreased, and what kinds of students would be affected by such a trend. Because more students attend low-cost colleges, it is reasonable to anticipate larger enrollments if costs go down. The additional students would likely come from diverse backgrounds, from all four student groups; the largest group would be students whose family income and educational development are low—the "new" student in higher education.

For the sample of financial aid applicants, family income was not related to the average family income at college attended. The correlation, given in Table 4, was .01, and contrasted with the finding for college students generally. The aid applicant's family income was related to the average family income at colleges given as first, second, and third choice just as in the general sample. The correlations are .24, .19, and .23, respectively. Similarly, the relationship between aid applicant's educational development (ACT Composite score) and the average educational development (mean ACT Composite score) of students enrolled at college attended is low (correlation of .04), but moderate to high for colleges that were first, second, and third choices (correlations of .43, .27, and .29, respectively).

It appears that in college choices, if not in college attended, aid applicants are sorting themselves by family income and educational development just as college students generally do both for college attended and college choice. The difference here for college attended is presumably the result of the intervention of financial aid. Without financial aid, these applicants would attend their first, second, or third choice college where the students are similar to them in family income and educational development. With financial aid these applicants attend other colleges where on these dimensions they are unlike enrolled students.

TABLE 5

Percent of Students by Family Income Attending a College Enrolling Students from Upper-Income Families (Percent of Students from Families with Incomes of $9,000 or More Is 50 or above)— College Students Generally

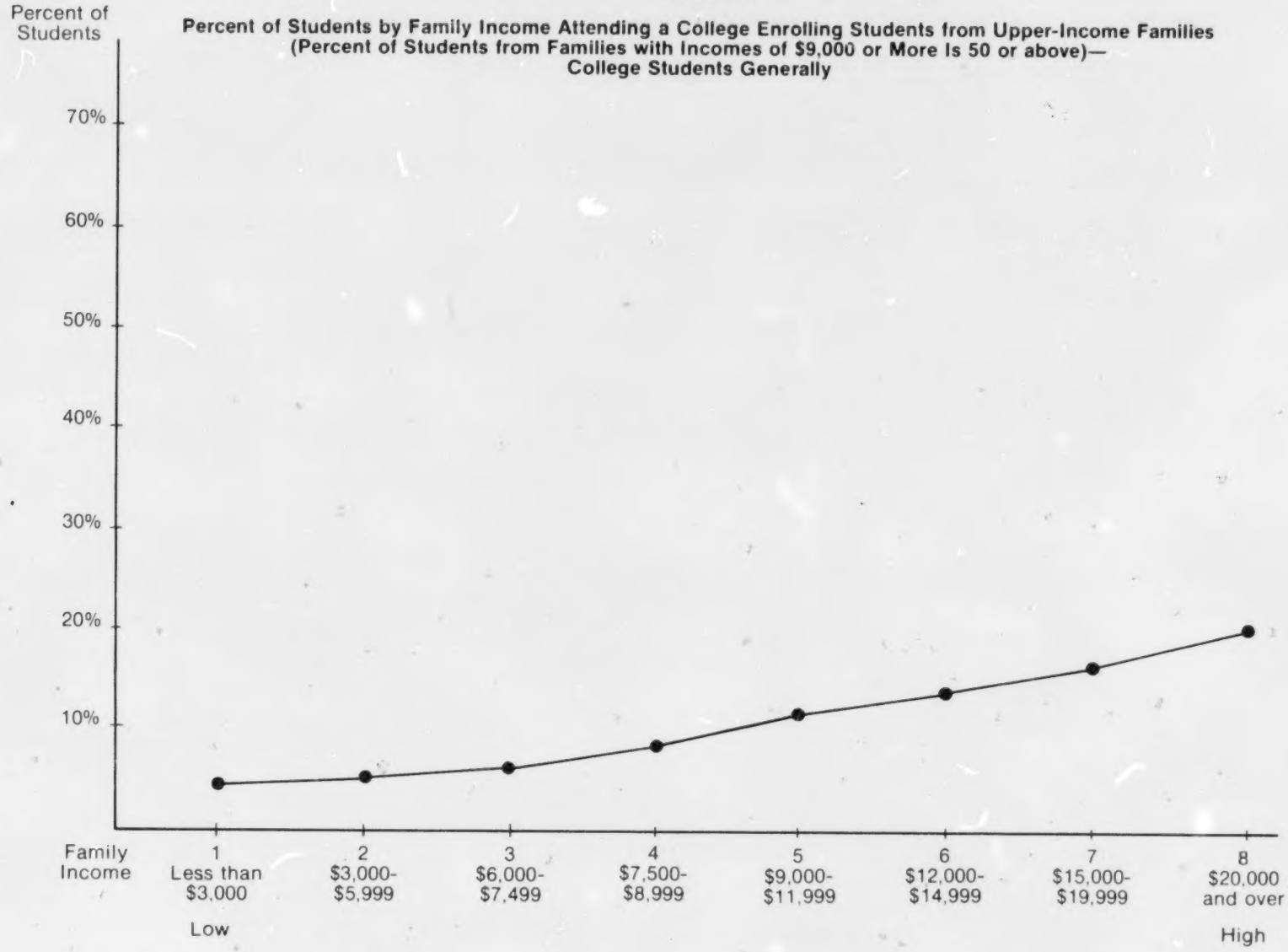

TABLE 6

Percent of Students by ACT Composite Attending a College Enrolling Students with High Educational Development (ACT C Mean > 22)— College Students Generally

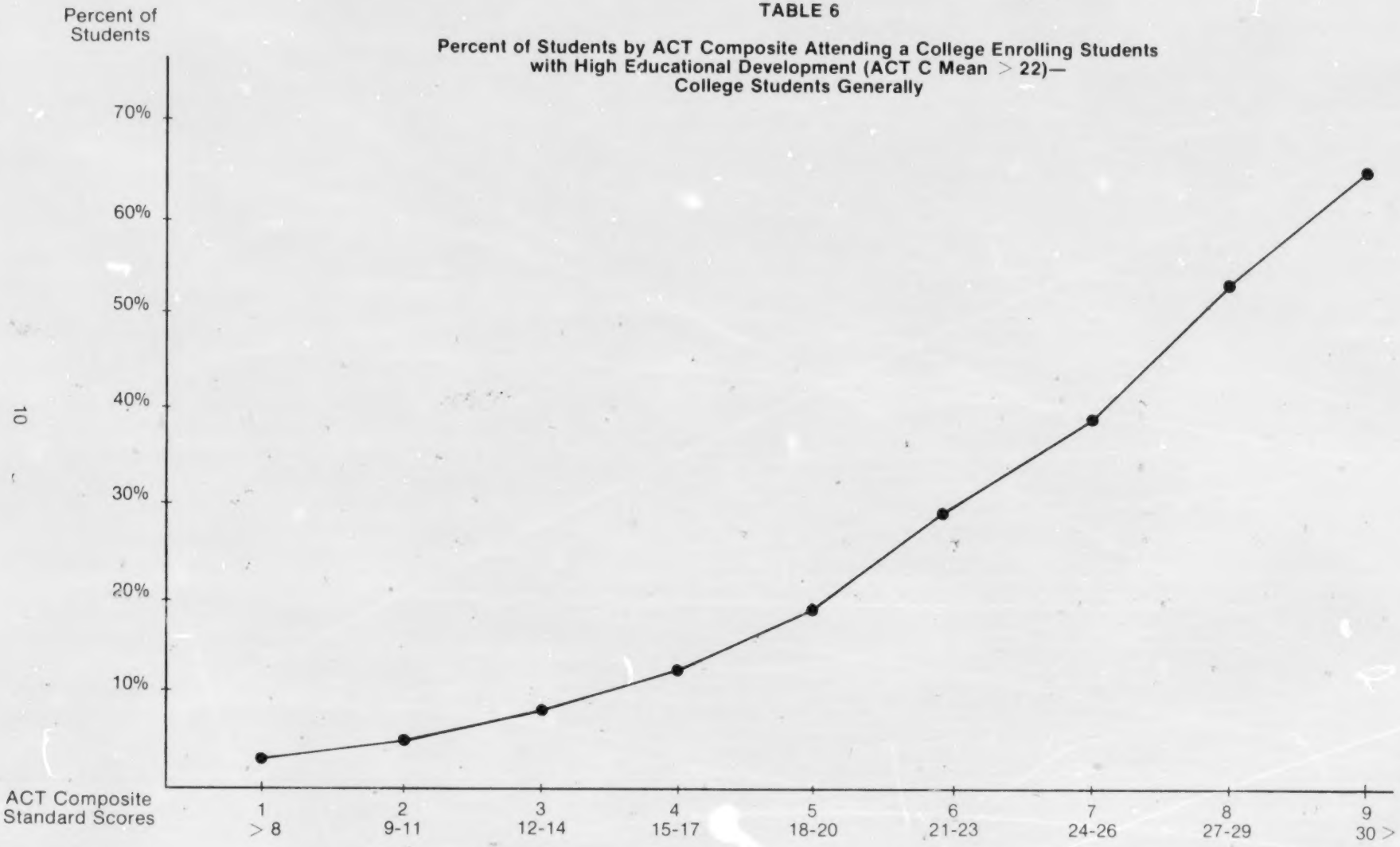

TABLE 7

College Attendance, by Quartile of College Cost, for Students at Income and Educational Development Extremes

Student Groups		College-Cost Quartiles: Low (Q1)	(Q2)	(Q3)	High (Q4)	
(1) High Income and High Educational Development Students	N	358	364	356	108	1,186
	PC	30.2	30.7	30.0	9.1	100
(2) High Income and Low Educational Development Students	N	257	251	149	37	694
	PC	37.0	36.2	21.5	5.3	100
(3) Low Income and High Educational Development Students	N	188	179	139	39	545
	PC	34.5	32.8	25.5	7.2	100
(4) Low Income and Low Educational Development Students	N	629	581	274	65	1,549
	PC	40.6	37.5	17.7	4.2	100

Total N = 3,974

Definitions of Student Groups

High Income $\geq$ \$15M

High Educational Development $\geq$ ACT C 23

Low Income $<$ \$6M

Low Educational Development $\leq$ ACT C 16

Relationships among College Characteristics

Relationships among college characteristics themselves are of interest. Table 3 shows the relation between average educational development (mean ACT Composite test scores) and average family income (percent of students with family incomes above $9,000) at colleges. Correlations were .39, .45, .46, and .49 between average educational development and average family income at college attended, and first, second, and third choice colleges, respectively. For individual students, the relation between educational development and family income was considerably less pronounced. The correlation was .22. This implies again that students sort themselves (or are sorted by colleges) on the basis of two dimensions: educational development and family income.

A moderate correlation was found between the institutional characteristics of college cost and average educational development of enrolled students. For college attended and college of first, second, and third choice, the correlations were .36, .34, .35, and .36, a finding which indicates moderate and consistent relationship. Put simply, higher cost colleges enroll students whose test scores are higher. At the same time, there was almost a negligible relationship between college costs and average family income of enrolled students. The correlations were .06, .04, .05, and .07, respectively for colleges attended and colleges of first, second, and third choice. High family income and high test scores go together; high test scores and high college costs go together. But as noted earlier, high family income and high college costs do not go together. The reverse is true for the low ends of the distributions as well.

Discussion

Limitations

There are two major limitations to this study. One is that as the source of students' family income, we relied upon student estimate of family income. A full 30% of students did not know their family income or preferred not to respond. Women in particular often did not know their family income. More important perhaps is that students may not have accurately estimated their family incomes for a variety of reasons. The correlations between family income and other indices of socioeconomic status, such as father's occupation and parent's education, are small to moderate and have already been reported. The results would indicate that we can have some confidence in the use of students' estimated family income, particularly in an exploratory study such as this, but a more firm index of family income would be desirable.

The second major limitation is that college costs as used in the study are more gross than they might actually be. We assumed that all students were living in residence, simply because this is the case for most college students. However, many students attending community colleges and some state and municipal universities commute; in this case, their room and board costs are borne by their families and do not represent a cash outlay. Further, some students receive financial aid, which likewise reduces college costs. Neither of these factors in reducing college costs was taken into account in this study, for the analyses relating student characteristics to college costs. Although financial aid applicants as a group were considered, we did not know or consider the amount of aid each applicant received.

This second limitation means that our results are not directly applicable to much of the current discussion on low tuition versus full costing accompanied by financial aid for needy students. Given the absence of refinements in family income and college costs, however, the results of this study show the relationships between student background and college characteristics, including cost, to be subtle and complex, and not nearly so straightforward as the proponents of either of the points of view sometimes suggest.

Related Economic Research in Student Demand for Postsecondary Education

Previous research has focused on the distribution of students from various ability and socioeconomic status (SES) backgrounds among various kinds of colleges. (Such research is called "demand studies" by economists.) Two examples are Radner and Miller (1970) and Mundell (1974). Both use 1966 Project Scope data applicable to high school seniors in four states. Although the research is somewhat dated, the results are useful particularly for the development of models of college-going, the major focus of these investigations. They suffer other problems common to research in this area—in the definition of family income and of student ability, sampling problems, and lack of information about financial aid. Radner and Miller report results for California, one of the four states studied, which show a probability distribution of student college choices by student background (income and ability) into various kinds of colleges, defined in part by cost. These results are consistent with the results reported here, in that they show considerable dispersion of students among the variety of colleges. Mundell's approach is similar to the Radner-Miller approach, but is more sophisticated in that it includes additional student and institutional variables believed significant in college choice and attendance.

The analytic model in the report of the National Commission on the Financing of Postsecondary Education was based on the Radner-Miller article. In addition, the report of the Commission included tables obtained from data from the Bureau of the Census and Project Talent showing distribution by family income of students in various types of colleges, corresponding roughly to college costs. Tables are provided showing this information by race and including non-college-bound students. In general, these tables yield data consistent with those reported here. There is great dispersion of students by family income and race among all types of colleges, though there is a tendency for students from low-income backgrounds to attend low-cost colleges (public 2-year colleges); the reverse is true for students from high-income backgrounds. The decision to attend or not to attend college is different from the decision of which college to attend; socioeconomic factors would be expected to play an important role in the former decision.

Other research found in the literature of social mobility offers some help in understanding relationships among college-going factors, primarily because it describes a similar phenomenon.

Is College Choice Analogous and Related to Social Mobility?

Studies of the relationships among family income, educational development, and college costs in college-going behavior of young people resemble studies of social mobility (Blau & Duncan, 1967) in several ways. In these studies SES of origin and ability do not directly determine SES attained, but rather SES and ability, through the intermediary of amount of education, determine occupation which in turn determines attained SES. One could view the cost of college attended as the outcome related to SES attained. Though educational development and family income are moderately correlated, family income itself is not related to attendance at a high-cost college except as it operates through educational development. While the consequences to a student of attending a high-cost in contrast to a low-cost college have not been documented,[3] it is widely believed by parents that a high-cost college does more for a student, in that in various ways it enhances upward mobility. Exactly how the high-cost college helps a student is not clear, and as a result, the tie between college cost and SES attained or success defined in any way is not explicit.

Summary of the Findings

The major general findings of this analysis may be summarized as follows.

1. The majority of students at all income levels attend low-cost colleges. Thus, changes in stu-

[3] Some researchers would disagree with the statement that it has not been documented that attending a high-cost college has slight effect. For example, Solmon (1973) analyzed college characteristics which reflect "college quality," many of which would likely be related to student cost, and concluded that quality of college attended was related to later earnings. Our view, however, is that evidence relating antecedent student background characteristics to amount of education (not which college) and then to outcome measures such as occupational attainment and earnings, is persuasive. See Blau and Duncan (1967) and Sewell, Haller, and Ohlendorf (1970). Work by Astin (1968) and by Alwin (1975) is also pertinent. Student background characteristics are themselves related to college choice, as this study shows. Hence, "college quality" effects could easily be the effects of student background characteristics. Greater effort to sort the two is needed. In the meantime, the public will likely continue to act on the assumption that a high-cost college offers more benefits to its graduates.

dent costs at these institutions would touch many people and have great potential impact.

2. There is little relation between the cost of college attended and students' family income. This is true for college students generally, and for aid applicants as well. College costs have the most significant impact on college attendance at the extremes of the income distribution.

3. Students sort themselves in college choice and attendance (or are sorted by colleges) on the basis of two dimensions: educational development and family income. In other words, college students generally enroll, and identify as college choices, colleges that enroll students who are like them in educational development and family income. This is true of college students generally, but not of financial aid applicants.

4. Average student educational development has a moderate and consistent relation to college costs, both for college-bound students generally and for aid applicants.

5. Financial aid applicants enroll at colleges whose students are different from them with respect to educational development and family income. The latter finding would be expected. The former, which would not likely be anticipated, was the biggest difference found between financial aid applicants and college students generally, and is presumed to be the result of the financial aid award.

Assumptions about College-Going Not Confirmed

These findings are at odds with a number of assumptions commonly made about college-going students. For example, consider the following.

1. College cost is a significant barrier to needy college-bound students and causes those who attend to choose a college on the basis of their ability to pay college costs. It follows from this that students' family income would be highly correlated with costs of colleges attended. The data reported here show, however, that students' family income is not highly related to the cost of college attended, perhaps in part as a result of financial aid programs.

2. Students tend to choose a college primarily because of its location, i.e., close to home. It follows from this that most of the relationships between student and college characteristics would be negligible, because students and colleges are essentially randomly distributed geographically. The data reported here do not confirm a random match of student and college characteristics. Although location may be an important factor in college choice, there may be several colleges in a given area, so that students may choose on the basis of college characteristics other than proximity.

3. Financial aid helps needy students enter colleges where they are similar to other students, except for their financial need. Students receiving financial aid were found to be different from other enrolled students with respect to educational development as well as to family income.

4. Colleges, individually and collectively, have student bodies of diverse socioeconomic status. Though only a few colleges today employ selective admissions, we would expect admissions officers at these colleges to select students on the basis of their educational development, test scores and high school rank, and to be alert to these students no matter what their socioeconomic status. We have been told these colleges are interested in the "talented poor." The resulting student mix on campus might be homogeneous with respect to educational development but certainly heterogeneous with respect to socioeconomic status. Analyses of college student bodies have shown that family income and educational development go together, institution by institution.

These four assumptions were not supported by the data presented here, and, in fact, are called into question by the data.

Assumptions about College-Going Confirmed

At the same time these findings confirmed a number of common assumptions about college-bound students, their choice process in selecting a college, the influences that impinge on them and the nature of higher education. For example, consider the following assumptions, supported at least in part by the data presented here, which seem to correspond to popular impressions of colleges and college-going youth.

1. People tend to go to the college their relatives or friends attend or have attended. Friendship patterns and relatives reflect general matches on socioeconomic status and probably on educational development. Students select colleges where there are people like themselves, specifically where friends attend or have attended.

2. Teachers and counselors who work with high school students often feel that the students' perceptions about colleges are more accurate than is commonly acknowledged. The student grapevine—the informal communications network of information about how colleges differ in important ways—may be quite accurate.

3. Social institutions reflect the stratification system operating in society, in terms of the people they serve, their diversity, and their purposes; family income is a key part of the stratification system. Colleges as social institutions are no exceptions, and consequently it is not surprising that colleges reflect the stratification system.

Research and Policy Questions

These findings do raise a number of serious questions. They are as yet unanswered and are of such importance that their ultimate resolution may change not only some of our assumptions about college-bound students and the colleges they attend, but also our educational practices and public policy. Among such unanswered questions are the following.

1. How do students get reliable information about colleges? Information about the average family income and educational development of students enrolled at various colleges is nowhere explicitly published.[4] Through what mechanisms do students get this information? Would it be good or bad if this information were communicated more effectively? Might existing student mechanisms be improved and used in precollege guidance? Is the information differentially distributed, so that some students have accurate information about colleges and other students have no or incorrect information. If so, what can be done about this?

2. What is the consequence of most students attending a college whose students are primarily like themselves, i.e., of the same social and educational background? Although the impact on students is not clear cut, one would think that such a situation would confirm or accentuate existing tendencies, for colleges do accentuate traits students bring with them. (See Feldman & Newcomb, 1969.) Does this make it more difficult for college graduates to work and play with people from social and educational backgrounds different from their own? If so, does college unduly contribute to the stratification system?

3. Do financial aid applicants face adjustment problems in college? What are the consequences when the aid applicants go to a college whose students are not similar to them, especially when aid applicants are dissimilar in ways they cannot readily change. For example, aid applicants cannot easily change their educational or social background. If attendance at a college whose students are from similar backgrounds accentuates relevant traits, might not attendance at a college with students from dissimilar backgrounds generate alienation, defensiveness, and frustration? Average effects on student development caused by dissimilarity, as well as individual differences in effects, are not well known.

4. What problems beset the college that enrolls large numbers of students on financial aid? It would appear these colleges are faced with many students who have academic problems; the aid applicants have a lower level of educational development than the college's typical students. For the college to adapt to these students and devise suitable learning strategies for them will require money and experience, neither of which most colleges have. This requires a level of college support for the student on financial aid that goes beyond the student award and the administration of the financial aid program.

---

[4]Information about the educational development of students enrolled at colleges of first, second, and third choice is provided on the Student Profile Report sent to all students who write the ACT Assessment. (See the ACT *Counselor's Handbook*, 1975.) Students receive this information after they have reported their college choices, but it may affect final college choice. However, the Student Profile Report provides no information about the family income or socioeconomic status of enrolled students. The author was unable to find any college guidebook that provides this information.

References

Alwin, D. F. Socioeconomic background, colleges and post-collegiate achievements. In W. H. Sewell, R. M. Hauser, and D. L. Featherman (Eds.) *Schooling and achievement in American society*. New York: Academic Press, 1975.

The American College Testing Program. *ACT Assessment counselor's handbook*. Iowa City, Iowa: Author, 1975.

Astin, A. W. Undergraduate achievement and institutional "excellence." *Science*, 1968, **161**, 661-668.

Blau, P., & Duncan, O. D. *The American occupational structure*. New York: John Wiley, 1967.

Feldman, K. A., & Newcomb, T. M. *The impact of college on students*. San Francisco: Jossey-Bass, 1969.

McMahon, W. W., & Wagner, A. P. *A study of the college investment decision*. ACT Research Report No. 59. Iowa City, Iowa: The American College Testing Program, 1973.

Mundell, D. S. Recent developments in the understanding of the determinants of demand for postsecondary education. Paper read at the 1974 Annual Meeting of the Southern Economic Association, November 14-16, 1974.

National Commission on the Financing of Postsecondary Education. *Financing postsecondary education in the United States*. Washington: U. S. Government Printing Office, 1973.

Radner, R., & Miller, L. S. Economics or education: Demand and supply in U. S. higher education. *American Economic Review*, 1970, **60**(2), 326-334.

Sewell, W. H., Haller, A. O., & Ohlendorf, G. W. The educational and early occupational status achievement process: Replication and revision. *American Sociological Review*, 1970, **35**, 1014-1027.

Solmon, L. C. *Schooling and subsequent success: Influence of ability, background, and formal education*. ACT Research Report No. 57. Iowa City, Iowa: The American College Testing Program, 1973.

ACT Research Reports

This report is Number 77 in a series published by the Research and Development Division of The American College Testing Program. The first 26 Research Reports have been deposited with the American Documentation Institute, ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington, D.C. 20540. Photocopies and 35 mm. microfilms are available at cost from ADI; order by ADI Document number. Advance payment is required. Make checks or money orders payable to: Chief, Photoduplication Service, Library of Congress. Research Reports No. 27 through No. 59 have been deposited with the National Auxiliary Publications Service of the American Society for Information Science (NAPS), c/o Microfiche Publications, 440 Park Avenue South, New York, New York 10016. Photocopies and 35 mm. microfilms are available at cost from NAPS. Order by NAPS Document number. Advance payment is required. Beginning with No. 60, the ACT Research Reports have been abstracted by the Educational Resources Information Center (ERIC) Clearinghouse System. Printed copies of most of the reports may be obtained from ACT Publications, P.O. Box 168, Iowa City, Iowa 52240 at a cost of $1.00 per copy. Check or money order must accompany request.

The reports in this series published since October 1970 are listed below. A complete list can be obtained from ACT Publications.

No. 37 *Practices and Outcomes of Vocational-Technical Education in Technical and Community Colleges*, by T. G. Gartland, & J. F. Carmody (NAPS No. 01441; photo, $6.80; microfilm, $2.00)

No. 38 *Bayesian Considerations in Educational Information Systems*, by M. R. Novick (NAPS No. 01442; photo, $5.00; microfilm, $2.00)

No. 39 *Interactive Effects of Achievement Orientation and Teaching Style on Academic Achievement*, by G. Domino (NAPS No. 01443; photo, $5.00; microfilm, $2.00)

No. 40 *An Analysis of the Structure of Vocational Interests*, by N. S. Cole, & G. R. Hanson (NAPS No. 01444; photo, $5.00; microfilm, $2.00)

No. 41 *How Do Community College Transfer and Occupational Students Differ?* by E. J. Brue, H. B. Engen, & E. J. Maxey (NAPS No. 01445; photo, $5.50; microfilm, $2.00)

No. 42 *Applications of Bayesian Methods to the Prediction of Educational Performance*, by M. R. Novick, P. H. Jackson, D. T. Thayer, & N. S. Cole (NAPS No. 01544; photo, $5.00; microfilm, $2.00)

No. 43 *Toward More Equitable Distribution of College Student Aid Funds: Problems in Assessing Student Financial Need*, by M. D. Orwig (NAPS No. 01543; photo, $5.00; microfilm, $2.00)

No. 44 *Converting Test Data to Counseling Information*, by D. J. Prediger (NAPS No. 01776; photo, $5.00; microfiche, $2.00)

No. 45 *The Accuracy of Self-Report Information Collected on the ACT Test Battery: High School Grades and Items of Nonacademic Achievement*, by E. J. Maxey, & V. J. Ormsby (NAPS No. 01777; photo, $5.00; microfiche, $2.00)

No. 46 *Correlates of Student Interest in Social Issues*, by R. H. Fenske, & J. F. Carmody (NAPS No. 01778; photo, $5.00; microfiche, $2.00)

No. 47 *The Impact of College on Students' Competence to Function in a Learning Society*, by M. H. Walizer, & R. E. Herriott (NAPS No. 01779; photo, $5.00; microfiche, $2.00)

No. 48 *Enrollment Projection Models for Institutional Planning*, by M. D. Orwig, P. K. Jones, & O. T. Lenning (NAPS No. 01780; photo, $5.00; microfiche, $2.00)

No. 49 *On Measuring the Vocational Interests of Women*, by N. S. Cole (NAPS No. 02071; photo, $5.00; microfiche, $1.50)

No. 50 *Stages in the Development of a Black Identity*, by W. S. Hall, R. Freedle, & W. E. Cross, Jr. (NAPS No. 02072; photo, $5.00; microfiche, $1.50)

No. 51 *Bias in Selection*, by N. S. Cole (NAPS No. 02073; photo, $5.00; microfiche, $1.50)

No. 52 *Changes in Goals, Plans, and Background Characteristics of College-Bound High School Students*, by J. F. Carmody, R. H. Fenske, & C. S. Scott (NAPS No. 02074; photo, $5.75; microfiche, $1.50)

No. 53 *Toward an Integration of Theory and Method for Criterion-Referenced Tests*, by R. K. Hambleton, & M. R. Novick (NAPS No. 02075; photo, $5.00; microfiche, $1.50)

No. 54 *College Student Migration*, by R. H. Fenske, C. S. Scott, & J. F. Carmody (NAPS No. 02215; photo, $5.00; microfiche, $1.50)

No. 55 *Predictions of Performance in Career Education*, by M. R. Novick, P. K. Jones, & N. S. Cole (NAPS No. 02216, photo, $5.00; microfiche, $1.50)

No. 56 *Predictors of Graduation from College*, by E. Nicholson (NAPS No. 02217; photo, $5.00; microfiche, $1.50)

No. 57 *Schooling and Subsequent Success: Influence of Ability, Background, and Formal Education*, by L. C. Solmon (NAPS No. 02218; photo, $5.00; microfiche, $1.50)

No. 58 *Common Fallacies about Heredity, Environment, and Human Behavior*, by A. Anastasi (NAPS No. 02220; photo, $5.00; microfiche, $1.50)

No. 59 *A Study of the College Investment Decision*, by W. W. McMahon, & A. P. Wagner (NAPS No. 02219; photo, $5.00; microfiche, $1.50)

No. 60 *Implementation of a Bayesian System for Decision Analysis in a Program of Individually Prescribed Instruction*, by R. L. Ferguson, & M. R. Novick

No. 61 *Nationwide Study of Student Career Development: Summary of Results*, by D. J. Prediger, J. D. Roth, & R. J. Noeth

No. 62 *Varieties of Accomplishment after College: Perspectives on the Meaning of Academic Talent*, by L. A. Munday, & J. C. Davis

No. 63 *Patterns of Concentration in Large Foundations' Grants to U.S. Colleges and Universities*, by R. Colvard, & A. M. Bennett

No. 64 *Vocational Choice Change Patterns of a National Sample of Community-Junior College Students*, by C. S. Scott, R. H. Fenske, & E. J. Maxey

No. 65 *Considerations and Procedures in National Norming: An Illustration Using the ACT Assessment of Career Development and ACT Career Planning Program, Grades 8-11*, by D. L. Bayless, J. W. Bergsten, L. H. Lewis, & R. J. Noeth

No. 66 *The Measurement of Economic Well-Being in Need Analysis Models*, by W. J. Goggin

No. 67 *Assessing the Career Interests of College Youth: Summary of Research and Applications*, by G. R. Hanson

No. 68 *Sex-Role Socialization and Employment Realities: Implications for Vocational Interest Measures*, by D. J. Prediger, & N. S. Cole

No. 69 *Predictive Validity of the ACT Tests at Selective Colleges*, by O. T. Lenning

No. 70 *Trends in the Academic Performance of High School and College Students*, by R. L. Ferguson, & E. J. Maxey

No. 71 *Declining Admissions Test Scores*, by L. A. Munday

No. 72 *Validity of the ACT Interest Inventory for Minority Group Members*, by R. R. Lamb

No. 73 *Teachers Are Psychologists, Too: On the Application of Psychology to Education*, by D. E. Hunt

No. 74 *Trends in the Academic Abilities, Background Characteristics, and Educational and Vocational Plans of College-Bound Students: 1970-71 to 1974-75*, by E. J. Maxey, L. M. Wimpey, R. L. Ferguson, & G. R. Hanson

No. 75 *Toward a Social Audit of Colleges: An Examination of College Student Outcomes in Terms of Admissions Information*, by L. A. Munday

No. 76 *Alternatives for Validating Interest Inventories against Group Membership Criteria*, by Dale J. Prediger